

In this second part we explain what it means for a manufacturer to compete through services. We do this in two steps.

In Chapter 3 we focus on the offering itself. We first explain why it can be difficult to understand the concept of servitization, and then explain the process, and define different forms of services. We then focus exclusively on advanced services. We define these and introduce the features that are commonly coupled to these (life-cycles, risks and rewards). We conclude this chapter by consolidating our description of advanced services.

In Chapter 4 we focus on the potential business implications of advanced services. We first explain the difficulties of finding reliable indicators of success and how we have navigated these. We then examine the relationships between services, revenue and profit. In addition, we also examine the broader motives that are shared by manufacturers who are leading providers of advanced services, along with the equivalent motives that are shared by their customers. We conclude this chapter by providing a roadmap of the servitization landscape.

In summary, the picture that these two chapters reveal is:

Servitization process:

- Occurs where a manufacturer develops its capabilities to compete through services.
- These manufacturers are seen as adopting a services-led competitive strategy.
- Some manufacturers follow a service-led strategy by offering a broader portfolio of conventional (base and intermediate) services.
- Other manufacturers largely abandon their design and production capabilities and become pure-services providers.

- Our focus is on those manufacturers that follow a services-led competitive strategy by delivering advanced services.

Advanced services:

- The outcomes for the customer are the capabilities that arise from the use of the manufacturer's products.
- For the manufacturer they represent a significant organizational stretch from production-based competences.
- Advanced services commonly feature extended life-cycles, extended responsibilities (and so risks) and increasingly regular revenue payments.
- Companies who develop these advanced services are commonly setting out to:
 - Target customers' pains (costs) and gains (profits).
 - Grow through business process innovations.
 - Develop long-term relationships that lock out competitors.
 - Develop resilient cash flow and revenue streams.
- These advanced services deliver high value through their potential to:
 - Increase revenue.
 - Increase profits.
 - Smooth revenue streams.

On completing this part of the book, our intention is that the reader understands exactly what is being offered through advanced services and the likely business implications. Armed with this knowledge, our next part explains how organizations are configured to deliver these successfully.

Chapter 3

ELEMENTS OF SERVITIZATION

Servitization is an intriguing concept. As we have just seen, various factors are conducive to services forming the backbone of a manufacturer's competitive advantage. The challenge is to translate this idea into practice.

In 2006, at the start of our research programme, we set out to contrast the world of production to that of one where a manufacturer competes through services by carefully surveying as many manufacturers as possible and reviewing extensive work on servitization in the academic and technical press. We also engaged with Rolls-Royce Civil Aerospace in a significant in-depth study of their power-by-the-hour and TotalCare offerings, along with their journey to develop and sustain these. As a team we studied all aspects of their services design and delivery system, reaching out to their customers and suppliers, and systematically collecting information as we progressed. Ours would prove to be one of the most comprehensive studies undertaken of an industrial product-service system and its associated servitization process.

The differences we saw were not immediately striking. The physical buildings, technologies and products all looked like those we would find in production. The same seemed to be true for the information

systems, process guides, organization structures and people. Only the condition monitoring technologies along with their associated technical centres and control rooms seemed to appear out of place. There was no Eureka moment. Our frustrations were compounded by our own mindsets; the core members of our team had been chosen because of their competence and experience in analysing, designing and operating manufacturing plants. Similarly, many of the academic articles we were reading were guiding our thinking into somewhat philosophical debates around the distinctions between products and services. Quite simply what we were being shown was not what we expected to find.

The picture eventually became clear. There are strong distinctions between the world of production and that of a manufacturer competing through services. Yet fully establishing this took a further four years of engaging and studying some of the world's leading manufacturers who were competing in this way. How these organizations thought and talked about services, and how they set about delivering their offerings successfully, all became clear. But this was a challenging journey. *Why did we choose the organizations we did? What forms of services do they offer to their customers? And what are the business benefits they have experienced?* All these questions had to be addressed before we could explore further.

In this and the following chapter we answer these questions. As a precursor, we first explain why it can be difficult at the outset to visualize what it can mean to servitize, and present a roadmap to help navigate this landscape. We then proceed to show how services can be rationalized into three different categories. Our focus then moves specifically to 'advanced' services which are readily associated with servitization. We delve into the distinctive features of these, explore the motivations that have enticed companies to adopt them, and summarize the associated risks and rewards.

3.1 The Challenge of Visualizing What it Can Mean to Servitize

Servitization constitutes a revolution in manufacturing. The motive that has underpinned this whole research programme is to help manufacturers in developed economies to innovate and exploit the opportunities offered by servitization. Throughout, we have kept ourselves grounded by repeatedly visiting and interviewing practitioners from more traditional manufacturers, seeking their opinion about the potential impact of servitization on their organizations.

Time and time again we have been asked by manufacturers to explain this phenomenon, describe what it can look like for them, the services they might offer, and the rewards they can expect. Expectations are high. At the beginning of our programme we would introduce servitization by describing it simply as adding services to products. We would gain traction during conversations by describing individual services such as helpdesks, condition monitoring and maintenance. Finally, we would describe 'pay per use' services such as Rolls-Royce's power-by-the-hour model. We found our responses would be received with great interest initially, and then the enthusiasm would frequently wane.

All too often we would be told that such a model would be too ambitious for most conventional manufacturers, or in some cases irrelevant, and we would then be asked for more 'pragmatic' suggestions. If we responded by giving a conservative suggestion (such as engagement in 'design for manufacture services') we would then be told that this is too simplistic, that it was already being done, or that there was too little value in such services. Dispirited, we came to realize that two factors were undermining our attempts to explain what it means to servitize; language and mindsets.

Complexity arises partly because companies do not share a common 'language' for describing services. There are strong colloquialisms and, to the independent observer, the terms of reference seem fluid and vague. For example, a service offering is sometimes named around a principal 'activity' involved, such as:

- Scheduled maintenance service.
- Repair service.
- Overhaul service.
- Condition monitoring service.
- An oil sampling service.

On other occasions a services offering is referred to as the contractual agreement, such as:

- A risk and revenue sharing contract.
- An availability contract.
- An outcome contract.
- A capability contract.
- A fleet management contract.

Such terminology is ambiguous. There is always a contractual agreement implicit in the purchase of an offering, and every contractual agreement will have an associated set of service activities.

This situation is compounded by managers interchanging the way in which they use the word 'service'. Sometimes it is used as a noun to name an activity (as above), while on other occasions it is used as a verb to describe performance. This can make conversations difficult to follow.

The language and terminology that manufacturers use when referring to services (and hence servitization) clearly has yet to mature – this is reminiscent of how many western manufacturers lost their way with the word quality in the early 1980s. Yet there is a more fundamental issue that is rooted in the mindsets of practitioners.

Many senior managers within manufacturing companies struggle to visualize servitization. This reflects our own experiences at the outset of this research programme. Just as we found for ourselves, the situation is especially complex for people with a strong production heritage. Their worldview or paradigm leads them to expect that services should feature in a manufacturer's strategy in a particular way – somewhat similar to adding additional features to a product. Furthermore, such production people see their organizations as being distinctly different from those which are pure-service providers: banks, hotels, hospitals and call centres. Figure 3.1 illustrates this situation as two polarized positions on a spectrum of knowledge.

People from a traditional manufacturing background are most likely to sit to the left of this spectrum. Their expertise is with

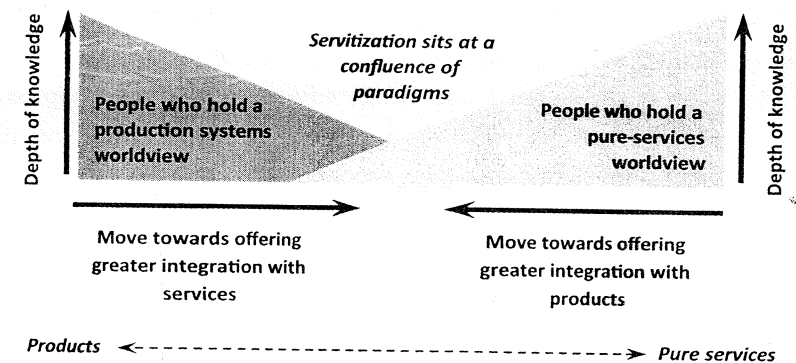


Figure 3.1: Clashing worldviews of products and services

production systems and their knowledge of services is limited. The services they understand are those which can be related directly back to production. For instance, an equipment manufacturer might explore carrying out on-site installation and commissioning. They will look for value from each service in isolation, and use this information to judge whether or not to offer that service.

Conversely, people from pure-service organizations will sit at the other extreme. Their expertise is with service systems, and the only production concepts they will understand are those that are easily related to services. As with production people, they will use their own particular terminology and concepts. Rather than talking about 'manufacturing operations', for example, they are likely to refer to service delivery systems and technology-enabled business models.

The topic of servitization sits at the confluence of these two world-views and borrows ideas from each. An unfortunate consequence is that some people from the production systems world can struggle to envisage ambitious services offerings; by contrast people with a service systems view can struggle to see value in products and technological competences.

Yet this is exactly the position taken by those organizations that are leading through servitization. Rolls-Royce, Caterpillar (and dealers), Alstom and MAN would all associate with this central zone. Xerox helps to illustrate the mindset needed; it no longer quotes figures for population or installed base of printers as this suggests that 'more is better' (which it is not!). Instead, Xerox sees itself as offering a managed print service to help its clients to optimize the number of devices they have and how they are used. This would be an anathema to production people.

As this chapter unfolds it will describe what it means for manufacturers to servitize. As an aid to navigating this and beginning to understand what it means, Figure 3.2 offers an initial roadmap of the servitization landscape.

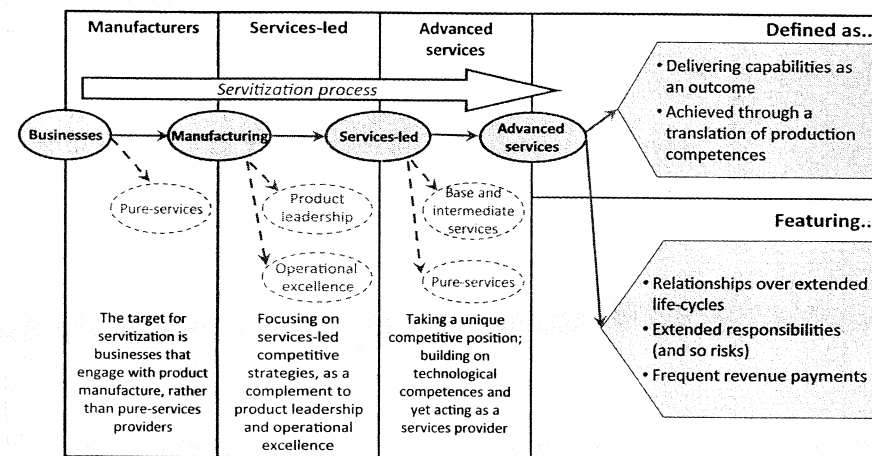


Figure 3.2: An emergent roadmap of the servitization landscape

3.2 A Process of Servitization

Generally, servitization is taken as a process where a manufacturer develops its capabilities to compete through services. This is illustrated as the route from left to right in Figure 3.2. Often this conjures an image of a manufacturer adding more and more services to a product platform. *But, is this really what is intended when the concept is discussed and promoted? How does it fit with other ways of competing? And, is it exclusive to manufacturing companies?*

The process suggests a change in the way the business competes. The target business itself needs to be in manufacturing and will servitize by transitioning from just production to acting increasingly as a services provider. The services it comes to offer are not necessarily new; the innovation comes about because it's the manufacturer that is seeking to offer these.

Pure-service providers can set out to offer the same services. They may also extend their technological capabilities to design and engineer

replacement products and parts. This is the productization of services and tends to be rare. During our programme we casually discussed this strategy with organizations such as Unipart and Wincanton (both large logistics providers). While not formally dismissing the option, we were left with no doubt; they would require considerable incentives for them to develop their capabilities in product design and production.

Could this be a missed opportunity? Such capabilities are expensive to build and sustain. They are also unlikely to be perceived as fitting well with existing core competences. If they are essential for a particular contract, then partnerships and joint ventures are always a possibility. Yet, just as servitization is now seen as valuable for manufacturers, it might be a little cavalier to dismiss the productization of services.

Pure-services providers are often the principal competitors for manufacturers moving into services. For instance, maintenance on MAN trucks can be carried out by MAN themselves, or the customer – should they have the facilities – or a third party provider. Often, these third parties are small, owner operated, mobile workshops. The point is that the services ‘are being carried out’. It’s just really a case of who does these currently, and who might be best placed to do so in the future.

Manufacturing businesses themselves have various competitive strategies that they can adopt. Michael Treacy and Fred Wiersema suggest this through their work on value disciplines. They recognize that some market leaders succeed through their product leadership and so invest heavily in product-related innovations. Some focus on operational excellence and succeed through minimizing their costs of production. Still others focus on customer intimacy and build close relationships and bonds with individual companies.

Customer intimacy underpins what we refer to as a services-led competitive strategy. Rather than offering distinctive product perform-

ance, or distinctively low product price, the manufacturer leads through distinctive services coupled to their products. This is not to suggest that product performance and operational efficiency are no longer important, they simply don’t need to stand out to the same extent as the services offering. Services are never a substitute for a poorly performing product; neither the customer nor the manufacturer can sustain a business in this way.

There are different routes a manufacturer can follow to a services-led competitive strategy (Figure 3.2). One alternative is to build a broad portfolio of relatively conventional services. For instance, they may offer a helpdesk for customers, a repair service, maintenance plans, training, and even factory tours. We refer to these as base and intermediate services and will return to discuss them further in the following section.

A second alternative is for the manufacturer to develop or acquire services that are independent of the products it makes. Such services are offered by organizations like IBM, and can be thought of as macro-servitization. Often these businesses have seen their traditional markets disappear and so are reinventing themselves largely as services-led technology companies by moving into areas such as general consulting and supply chain management. Although technical competences remain important to these companies, they have now removed their focus so far from production that they would no longer refer to themselves as manufacturers.

A third option is for the manufacturer to offer advanced services. For the moment, we will simply take these as services which are closely coupled with products, to such an extent that they are seen as providing customers with a capability rather than just a physical asset. As we will explain shortly, they have a number of distinctive features, and are exactly the services offerings that are associated with the middle ground illustrated in Figure 3.1.

3.3 Defining Base, Intermediate and Advanced Services

Our focus for servitization is on manufacturers that are choosing to compete through a services-led strategy by delivering advanced services. This is the route we illustrate in our roadmap (Figure 3.2). To better understand this route, we now need to delve further into defining different services offerings.

A popular mental image of a manufacturer is that it makes products; material artefacts capable of causing pain should they drop on your foot! Services provided by manufacturers are thought of as an after-sales activity e.g. repair and overhaul. Underpinning this mental image is the notion that products and services are distinctly different and should be treated separately.

Many models within the academic press build on this definition, illustrating how increasing levels of servitization translate to a change in the balance between products and services in the offering to the customer. They inspire a debate that can easily become very philosophical.

Leading adopters of servitization don't think in this way. Rather than the interplay of products and services, they base their distinction on the value proposition to their customers. Caterpillar dealers illustrate this situation well. When referring to their customers they told us that they have:

- Customers who want to *do it themselves*,
- Customers who want us to *do it with them*, and
- Customers who want us to *do it for them*.

These dealers (as part of the extended Caterpillar organization) recognize that some of their customers will only value the provision

of equipment, spare parts and consumables. They will then maintain and repair the equipment themselves in their own facilities. Others will carry out some maintenance themselves, such as periodic oil and filter changes, but engage the dealer should repair or overhaul be needed. Others will simply want to operate the equipment and have the dealer take care of everything else.

Each type of customer achieves particular outcomes from their relationship with the Caterpillar dealer. At the simplest level, the outcome is that the customer gains access to the equipment. We refer to this type of service offering as 'base services'. The outcome at the second level, or from 'intermediate services', is a reassurance that the equipment is maintained appropriately. The outcome at the third level is, however, more complex.

With these 'advanced services' the emphasis moves away from the equipment itself and focuses more on the consequence of its performance. The outcome for the customer is now the capability delivered through the performance of the product. Hence, leading adopters of servitization will frequently refer to engaging the customer in a relationship that has closer associations with strategic repositioning and business process outsourcing than to sales of products and services. The distinctions between these types of services are captured in Table 3.1.

Moving from offering base, through intermediate, to advanced services requires a transfer of 'activities' that were once internal to the customer. In other words, the manufacturer has to stretch its range of activities to take an increasingly large slice of its customers' operations. Picturing these activities is an important step in understanding the services being offered.

It is relatively simple to envisage how a base service, such as providing spare parts, can appear as an offering to a customer. Similarly intermediate services, such as maintenance and repair, conjure an image of a workshop with technicians working on equipment. Yet a

Table 3.1 Categorization of product-services offered by a manufacturer

Type	Defined by	Organizational stretch	Examples of services offered
Base services	An outcome focused on product provision	Based on an execution of production competence (i.e. we know how to build it)	Product/equipment provision, spare part provision, warranty
Intermediate services	An outcome focused on maintenance of product condition	Based on exploitation of production competences to also maintain the condition of products (i.e. because we know how to build it we know how to repair it)	Scheduled maintenance, technical helpdesk, repair, overhaul, delivery to site, installation, operator training, operator certification, condition monitoring, in-field service
Advanced services	An outcome focused on capability delivered through performance of the product	Based on translation of production competences to also manage the product's performance (i.e. because we know how to build it we know how to keep it operational)	Customer support agreement, risk and reward sharing contract, revenue-through-use contract, rental agreement

picture of the activities associated with advanced services is still somewhat elusive. *What exactly are the activities associated with advanced services?*

Unfortunately the common practice is to refer to advanced services as 'contracts' rather than the activities on which they are based. Part of the reason for this is that manufacturers bring a complex and extended range of activities together to create an advanced services offering. Some of these are very specific to advanced services.

Advanced services, for instance, demand specific programme management activities. These are very much the glue that holds such contracts together. We mentioned at the beginning of this chapter how, in our initial study of Rolls-Royce, the operations room/control centre had readily stood out. The function of these centres typically includes programme management. Closely coupled to this are planning activities; scheduling times and locations for asset maintenance, recording interventions, logging safety checks, managing resources, and controlling stock.

Advanced services also bring together a wide range of existing services, occasionally referred to as bundling or embedding. Again, it can be difficult to fully appreciate the range of services being offered. To illustrate, take the example of a car being sent into a garage for an engine repair; the repair (or service activity) is seen as the process of stripping down the engine and replacing the faulty or worn component. Look more closely, however, and you will see that the word 'repair' is somewhat of a simplification. Other activities, which are taken for granted, are embedded in the process; a mechanic might first be engaged to diagnose and locate the faulty component, an administrator might schedule the appointment, spare parts might be ordered, a helpdesk might be contacted, and so on. Yet the general approach is to bundle these under the umbrella term of 'repair'.

This is exactly the situation with advanced services. Advanced services are constructed on a platform of intermediate services, which

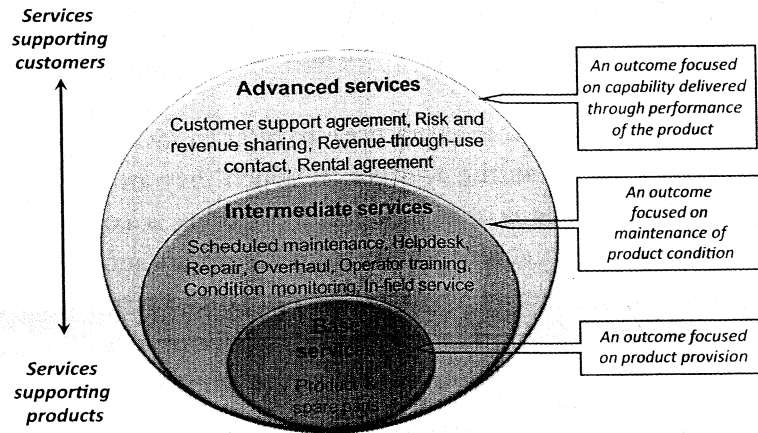


Figure 3.3: Services radar diagram illustrating the types of services a manufacturer can offer

are themselves built on base services. These services can be thought of as building on each other to deliver different outcomes for customers (Table 3.1). This process is illustrated in Figure 3.3. Here, the desired outcome extends from simply 'providing a product' through to 'providing a capability'. Occasionally this is expressed as a transition from 'services supporting products' to 'services supporting customers'.

Advanced services are appealing because they deliver a capability as an outcome. This alone can be appealing for the customer as, for example, it removes the need for product ownership. However, this only partially explains their appeal. In practice, leading adopters of servitization have also coupled particular features to such services. Although these are not in themselves unusual, the resulting offering has distinctive characteristics. We will now explore these further.

3.4 Features Commonly Coupled to Advanced Services

Advanced services focus on delivering capabilities and cause the manufacturer to stretch its activities well beyond production. It's relatively easy to envisage a mechanism whereby the footprint of the customer and manufacturer changes to reflect such services; activities which were once undertaken by the former being carried out by the latter. It's also easy to imagine that all the activities in which the manufacturer now engages are not immediately apparent to the observer. *But is this the complete picture? What other characteristics occur to distinguish between different forms of advanced services?*

Our description of advanced services only goes part way to describing those being offered in practice. A focus on delivering a capability as an outcome is foundational to defining such services. However, manufacturers add other features to the services agreement. For instance, they may flex the process of revenue generations such that the service is paid for as it is consumed; they may adjust the balance of risk that they take in assuring the outcome of the service; and they may agree to deliver such services over an extended life-cycle.

None of these features are themselves unique to advanced services. They may all be applied, in some form, to base and intermediate services. Yet it is popular practice for these to be coupled as additional features to create a sophisticated offering to customers. We will now explore each of these further.

Advanced services usually feature an extended life-cycle

So far we have simply examined the activities involved in the execution of a services offering as these are most readily apparent. But this is just one part of the offering. With advanced services, manufacturers

tend to look closely at the extended lifecycle, the activities within this and perhaps most critically how this can be sustained. Furthermore, these life-cycles are almost always lengthy and in some cases stretch over decades.

Although initially transparent to the observer, the life-cycle of advanced services falls into three phases:

1. Generation (or regeneration); service activities carried out to win and sustain a services contract.
2. Deployment; which includes activities carried out to set up and to commission the services offering.
3. Execution; which includes activities carried out in the delivery of the services offering.

Activities associated with *generation* of the contract, such as application consulting, demonstrations and even facility tours are often less apparent because they are management tasks rather than something that happens in a workshop. Yet, as we have seen time and time again during our study, they are extensive and always required.

Such services may also form a bridge between completing one contract and winning another, for instance when there is an agreement to buy back or take on existing equipment from a customer. Those activities associated with *deployment* bridge the generation and execution phases. They include the delivery of equipment, testing and training.

The life-cycle of advanced services contracts is typically very long. Five and ten years are quite common. A contract on a MAN truck may be for five years; a Rolls-Royce TotalCare contract will typically run for ten years; while an Alstom Train Life Services contract may extend beyond 20 years.

Intriguingly some manufacturers will use the term 'through-life' when referring to this life-cycle. They will recognize the three phases but underpinning this is an assumption that these are still related to a

particular product sale. The notion of advanced services should, really, surpass this product association. Xerox, for example, fully embraces the notion of delivering a capability as an outcome. They will take on a contract where the customer already has an installed base of a competitor's products, support this equipment, maintain its performance and eventually replace it with their own products.

Advanced services usually feature extended responsibilities, risks and penalties

Risk share refers to the balance of responsibility between the manufacturer and the customer. At one extreme the customer can assume the majority of the risk for equipment functionality, with the manufacturer only offering initial guarantees and warranties. This is usually the case with base and intermediate services.

With advanced services, however, manufacturers tend to take on much greater levels of responsibility. Not only do they focus on outcomes from the performance of their product, but they also take responsibility for these being fulfilled.

With Alstom Train Life Services, for example, this responsibility is defined against the performance, availability and reliability of trains. Performance is concerned with the extent to which the full capability of equipment is delivered. Availability is assessed as the extent of time that a train is available for use, as a proportion of the scheduled availability within an agreed period. Reliability is assessed as a measure of frequency of unpredicted failures. Alstom is assessed against these measures. Should they fail to meet agreed targets, then they are responsible for any corrective action. Furthermore, they incur financial penalties from the customer for any disruption caused while this takes place.

This balance of responsibility and risk does vary across advanced services contracts. A Caterpillar dealership 'Risk and Reward' sharing

contract is less arduous than the Alstom example. Here, at the outset of a contract an agreement is made with the customer over equipment availability and the cost to fulfil this. Should the cost of fulfilling this be exceeded, then the Caterpillar dealer will have only half of its costs paid. Alternatively, if the actual costs are lower than those expected, then the Caterpillar dealer is partially compensated for its lost revenue.

So distinctive are these features of responsibility and risk that, on occasion, advanced services contracts are simply viewed in these terms. Rather than focusing on the 'outcome' for a customer, some practitioners take the view that the manufacturer is engaging in increasing levels of risk management. This necessitates a macro-view to be taken of risks, and can follow a rather product-centric view of the services offering.

Advanced services usually feature regular revenue payments

The economic model refers to the timing and process through which funds are transferred. At the outset of our study the economic model of advanced services was somewhat of a mystery. Some academic papers, for instance, led us to believe that 'Rolls-Royce no longer sold engines'. Instead they leased them on a power-by-the-hour basis. *Is this true? If so, how can they afford to do this?* Slowly through our study we unpicked the situation that is common to many advanced services.

Part of the confusion arises because advanced services tend to be highly tailored to individual customers in particular industries. We soon realized that we could not expect to see an aerospace 'power-by-the-hour' contract precisely replicated in the machine tool industry. Slowly the picture cleared. We came to appreciate that when describing the revenue flow, much depends on whether you feature as the

customer or the manufacturer, and whether or not you are dealing with capital acquisitions. It also became clear that frequently a financial partner would be involved.

To illustrate, the economic model with 'power-by-the hour' is partially similar to a car leasing scheme. The manufacturer provides the car, but the financial partner provides the resources for the customer to make the purchase. In return the customer enters into an agreement to make regular payments. The bulk of this fee is paid to the financial partner for capital repayment plus interest. However, some portion may go directly to the manufacturer as part of an ongoing maintenance plan.

A similar process of frequent revenue payments is usually associated with advanced services. However, questions are often raised over '*who owns the equipment/product/asset with advanced services?*' Rarely is it the customer (end user); in this sense those articles in the academic press were accurate. The customer typically makes a regular (e.g. monthly) payment reflecting the lease arrangements and any associated services package. But, rarely is it the manufacturer either, most frequently the financial partner becomes the legal owner of the asset.

This situation was illustrated to the team during visits to the Aircraft Maintenance and Repair depot for Virgin at Heathrow airport. After a guided tour of the facility, we were then shown a gas turbine that was in the process of undergoing a scheduled service check. On the side of the engine a plaque clearly stated that the engine was owned by a financial partner and under mortgage to Virgin Atlantic. A similar plaque was positioned behind the pilot's seat and referred to the whole aircraft.

A final point on this issue, which again causes confusion, is that many of the larger manufacturers have their own financial organizations. In some instances these will be the financial partners, on others an independent organization can be involved. In this sense, the broader

Rolls-Royce organization really can lease engines on a 'power-by-the-hour' basis.

The economic model associated with advanced services is also particular around penalties and usage. Penalties are incorporated into the process in two ways. If the manufacturer's product fails to perform as expected then the customer can draw back payments. Likewise, if the customer fails to use the product as agreed then the manufacturer can receive compensation.

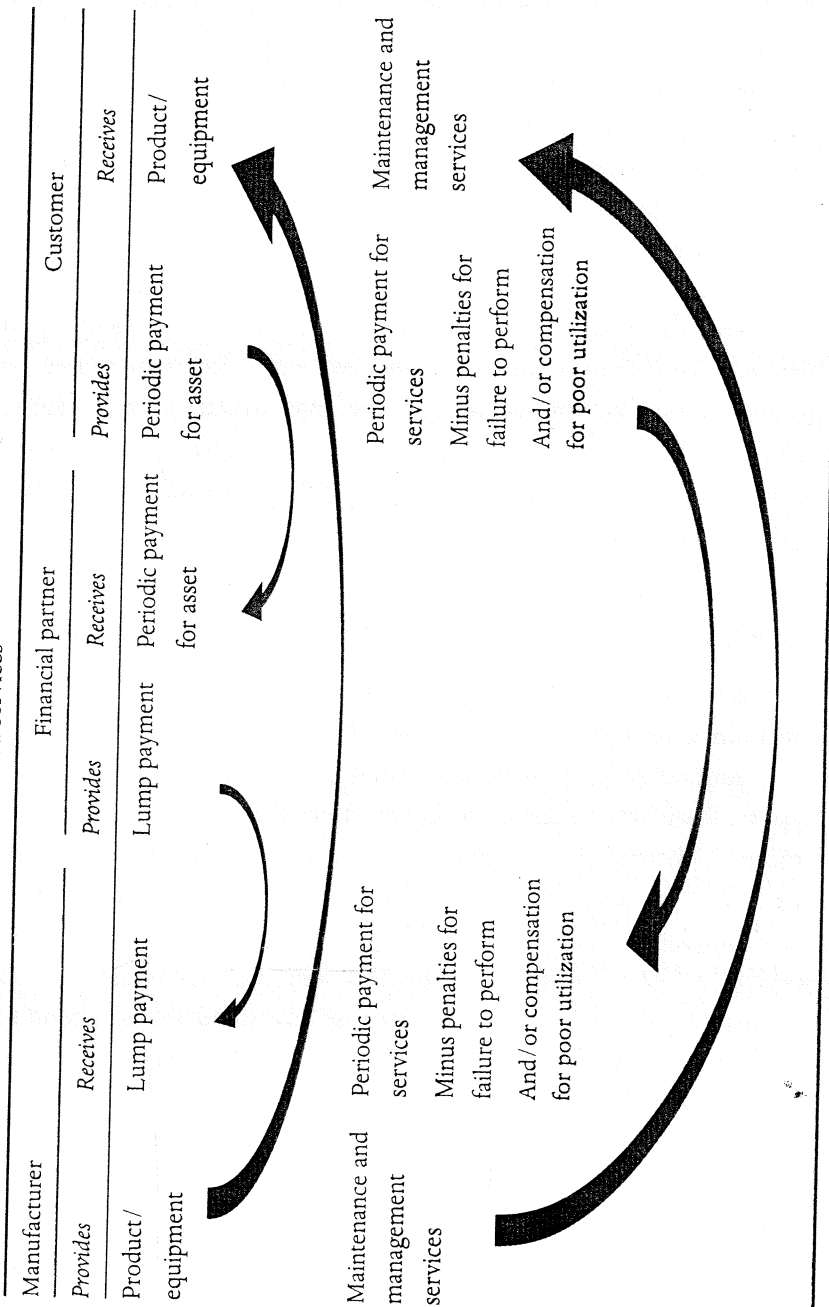
Recalling for the moment the risk and reward sharing contract mentioned above, in the situation where the maintenance costs exceed the agreed fee, then generally they are shared between the manufacturer and customer on a 50/50 split. Should the actual costs be less than expected, then the manufacturer can be partially compensated with a share in the saving.

Advanced services contracts will typically stipulate levels of asset usage. There may be a minimum level agreed – such that the manufacturer will receive a base fee each month – and also a maximum level that should not be exceeded. For example, a Caterpillar quarry truck may be contracted to be available 20 hours each day. Should this be exceeded, the customer is charged a premium.

Such agreements on usage also cover how equipment is used. For instance, an aircraft might be covered for particular routes. This reflects the extra loads placed on an engine during landings and take-offs each day. Should the customer change the route, maybe moving from long haul to regional travel, then premiums might be charged by the manufacturer.

Table 3.2 summarizes this economic model. As a consequence of this economic model advanced services are quite different to base and intermediate. In some instances this is quite straightforward, such as when spare parts are paid for by the customer at the point of collection, or when repairs are made on the basis of time and materials consumed and interim payments are made by the customer.

Table 3.2 Generalized economic model for advanced services



3.5 A Summary of Advanced Services

We began this chapter by explaining that the opportunities presented by servitization can be difficult to visualize for people with a strong background in production. As an aid to navigating this topic we presented a roadmap of the servitization landscape (Figure 3.2). The chapter has followed this, defining servitization, and introducing advanced services and their distinctive features.

The following chapter will complete this journey by summarizing the motives that underpin the adoption of these services and how these then deliver high value. At this interlude, it is helpful to summarize the form that advanced services take.

Figure 3.4 illustrates that base services are at the core of any offering from a manufacturing enterprise. These are concerned with the

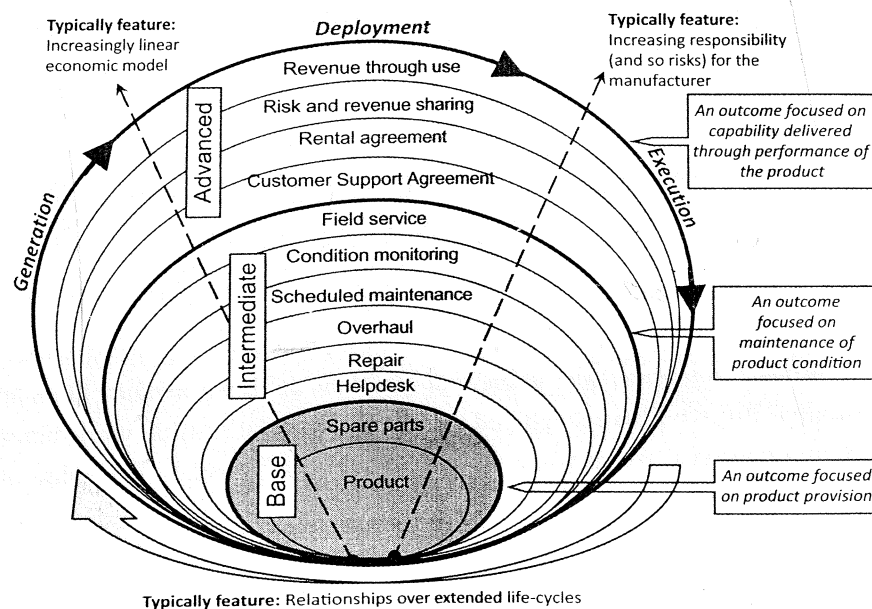


Figure 3.4: Illustrating the characteristics of advanced services with examples

initial provision of products (e.g. excavator or machine tool) and associated spare parts.

If the manufacturer then extends into intermediate services, such as repair and overhaul, there is implicitly a greater involvement in ensuring the state and condition of equipment. For example, operator training ensures that equipment is used as intended, scheduled maintenance ensures that oil changes take place as specified, and condition monitoring such as oil sampling helps to highlight any unforeseen deterioration in equipment condition.

These intermediate services embed many base services to focus on the maintenance of product condition. For example, efficient spare parts provision can help to ensure rapid repairs. However, advanced services subsume both base and intermediate services. The outcome they provide is the capability that is delivered through the product's use rather than simply its condition. In practice, manufacturers also combine these with agreements for longer contract life-cycles, increased responsibilities, and more stable revenue flows.

Our illustration has set out to isolate the features of typical advanced services offerings. They are the key elements of the proposition to the customer. Delivery of these services requires the manufacturer to adopt specific practices and technologies. We will explore these shortly, but before doing so we will first examine the motives and benefits that help to explain the appeal of advanced services.

Chapter 4

BUSINESS IMPLICATIONS OF ADVANCED SERVICES

Servitization is catching the western world's attention because of the successes of companies such as Rolls-Royce. In 2006, when our programme of research commenced, Rolls-Royce earned over 54% of its revenue from services. Indeed, services have made a significant contribution to their income and profitability for the past decade.

Our subsequent study of Rolls-Royce helped us to appreciate that their revenues come from a mix of base, intermediate and advanced services. Rolls Royce will, for example, provide spare parts, undertake to repair engines, and offer 'power-by-the-hour' contracts. The generation of revenue from such a mix of services transpired to be apparent in all the companies we would later come to study.

Our initial questions were clear. *How do different types of services contribute to revenue generation, and also how do they contribute to profitability?* But we also recognized that such financial results, while alone being powerful motivators, would only partially explain the value of services to manufacturers.

There would be other reasons why manufacturers favoured a servitization strategy. Similarly, there would be a complementary set of reasons that explain why customers were receptive to such a strategy. Our interest focused explicitly on advanced service. We therefore set